

FIG. 1A Prior Art

10 Processing Element	59 Received Data
20 Transmitter	60 Modulator
30 Processing Unit	90 Wavelength Addressed Receiver
40 Tunable Laser	E Electronic Data to be Transmitted
50 Data Packet	$\lambda$ Wavelength Designation

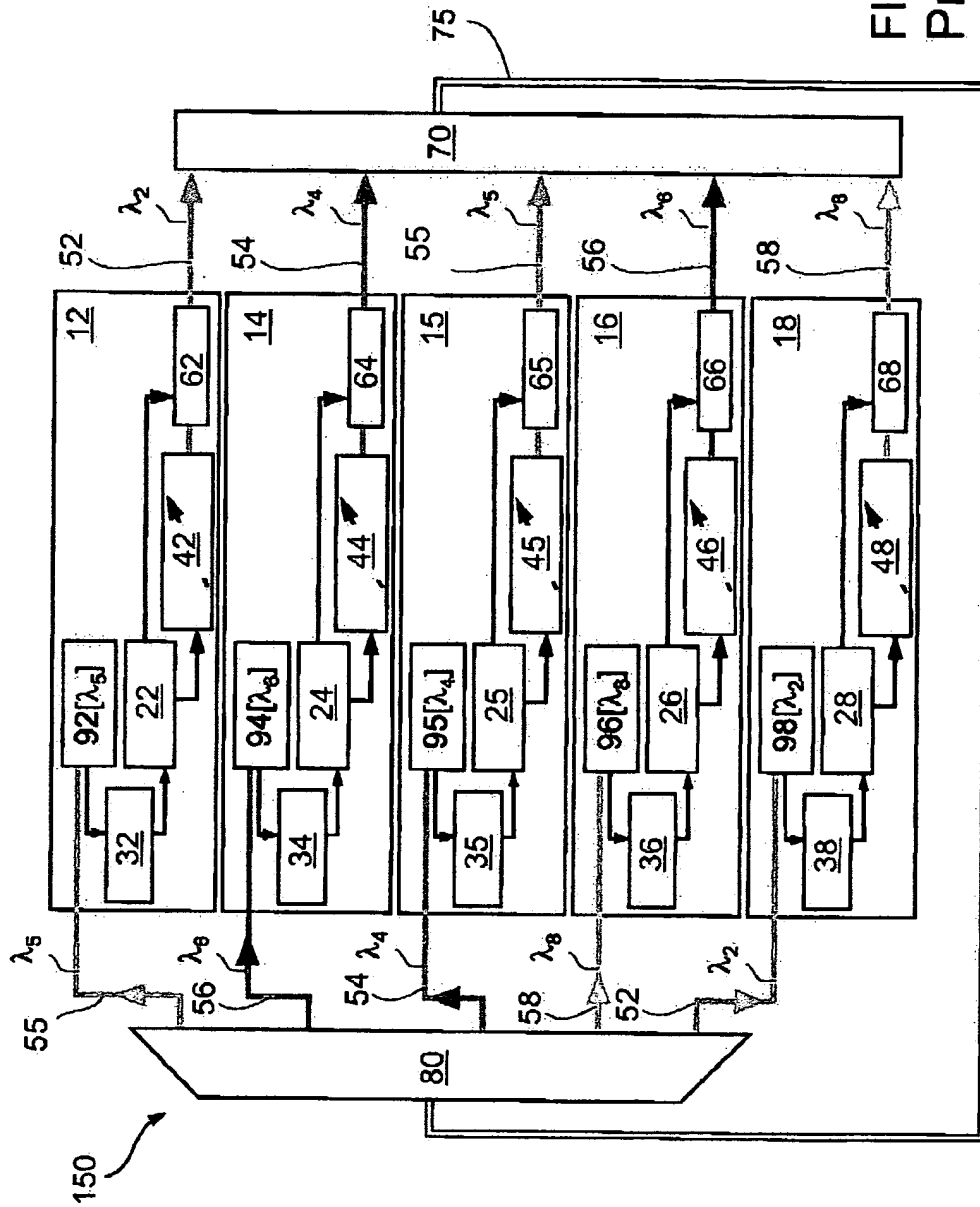


FIG. 1B  
 Prior Art

- |   |  |
|---|--|
| 12, 14, 15, 16, 18 Processing Elements (PE) | 70 Optical Coupler                               |
| 22, 24, 25, 26, 28 Transmitters             | 75 Optical Fiber                                 |
| 32, 34, 35, 36, 38 Processing Units         | 80 Optical Wavelength Demultiplexer              |
| 42, 44, 45, 46, 48 Tunable Lasers           | 92, 94, 95, 96, 98 Wavelength Addressed Receiver |
| 52, 54, 55, 56, 58 Data Packets             | 150 Data Network                                 |
| 62, 64, 65, 66, 68 Modulators               | $\lambda$ Wavelength Designation                 |

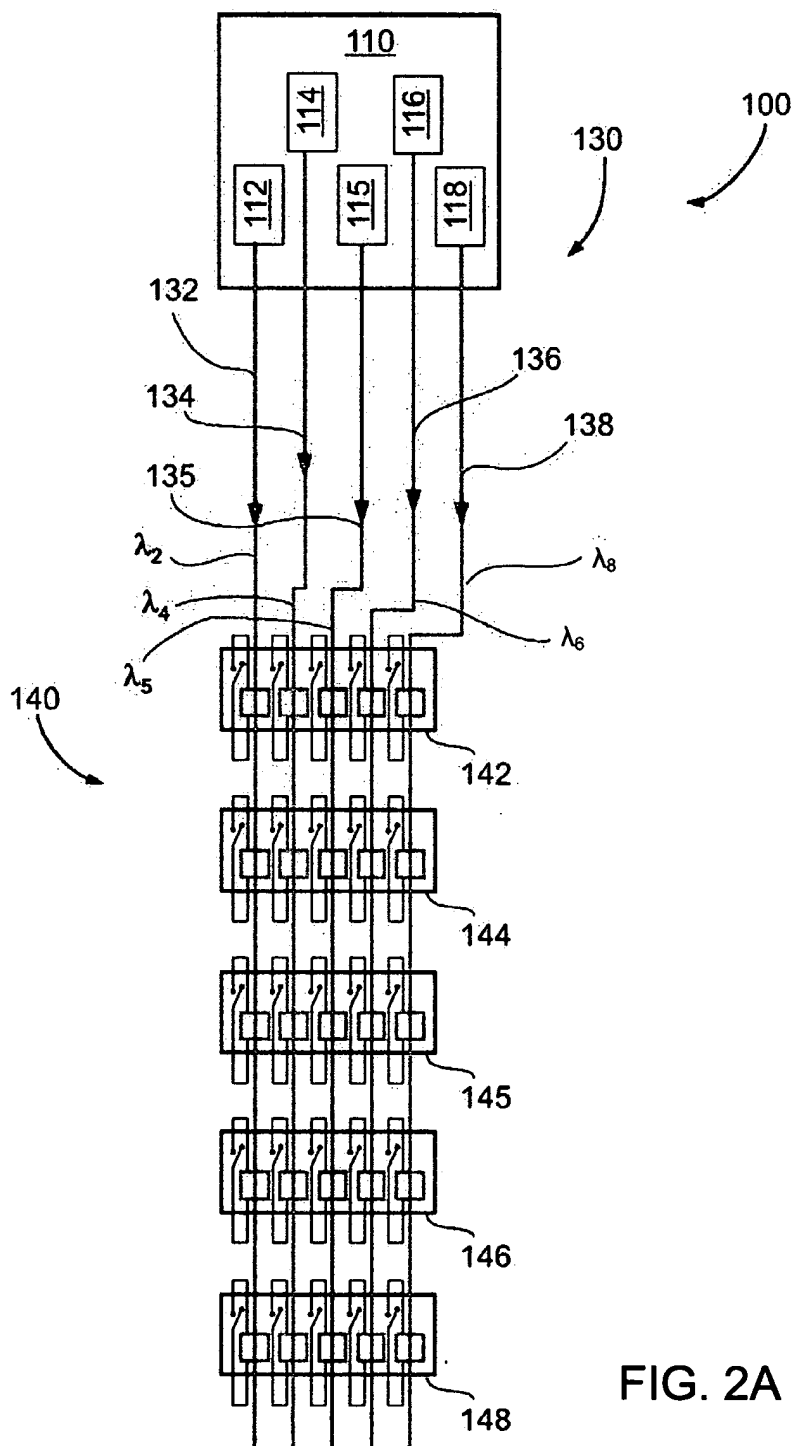


FIG. 2A

100 Laser Power Grid	140 Optical Switching Network
110 Laser Power Supply	132, 134, 135, 136, 138 Optical Fibers
112, 114, 115, 116, 118 Laser Sources	142, 144, 145, 146, 148 Optical Switch Arrays
130 Laser Distribution Grid	$\lambda$ Wavelength Designation

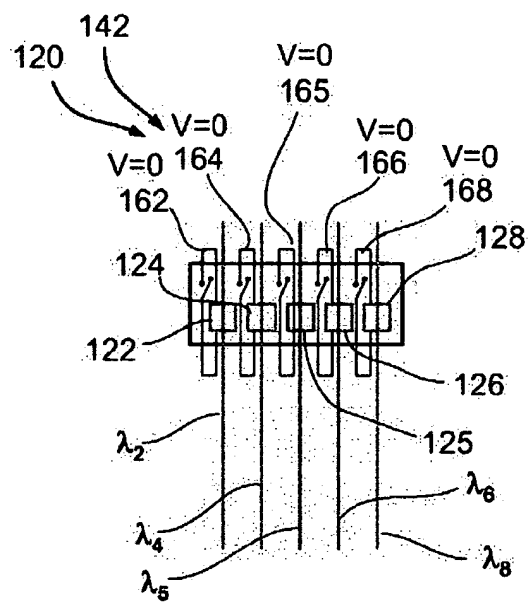


FIG. 2B

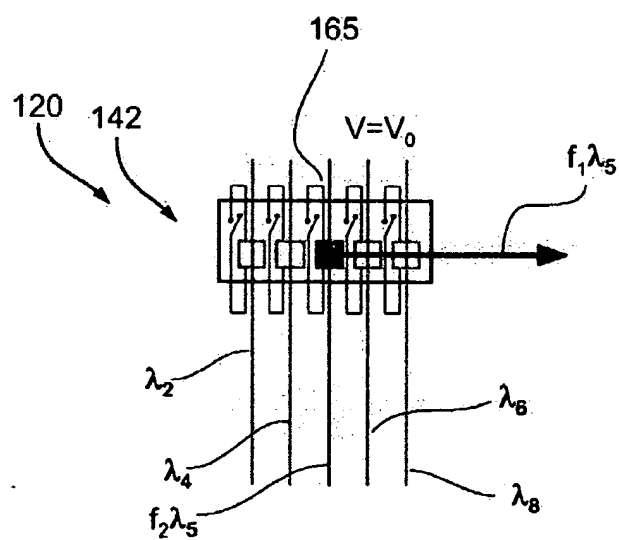


FIG. 2C

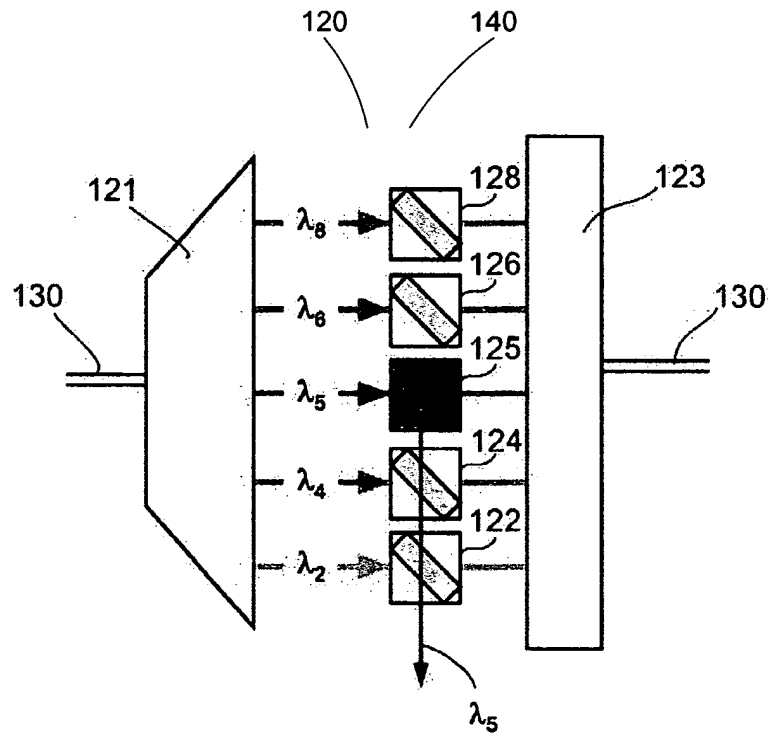


FIG. 2D

120 Optical Switch Array  
121 Optical Wavelength Demultiplexer  
122, 124, 125, 126, 128 Optical Switches  
123 Coupler  
130 Optical Fiber  
142 Optical Switch Array  
 $\lambda$  Wavelength Designation

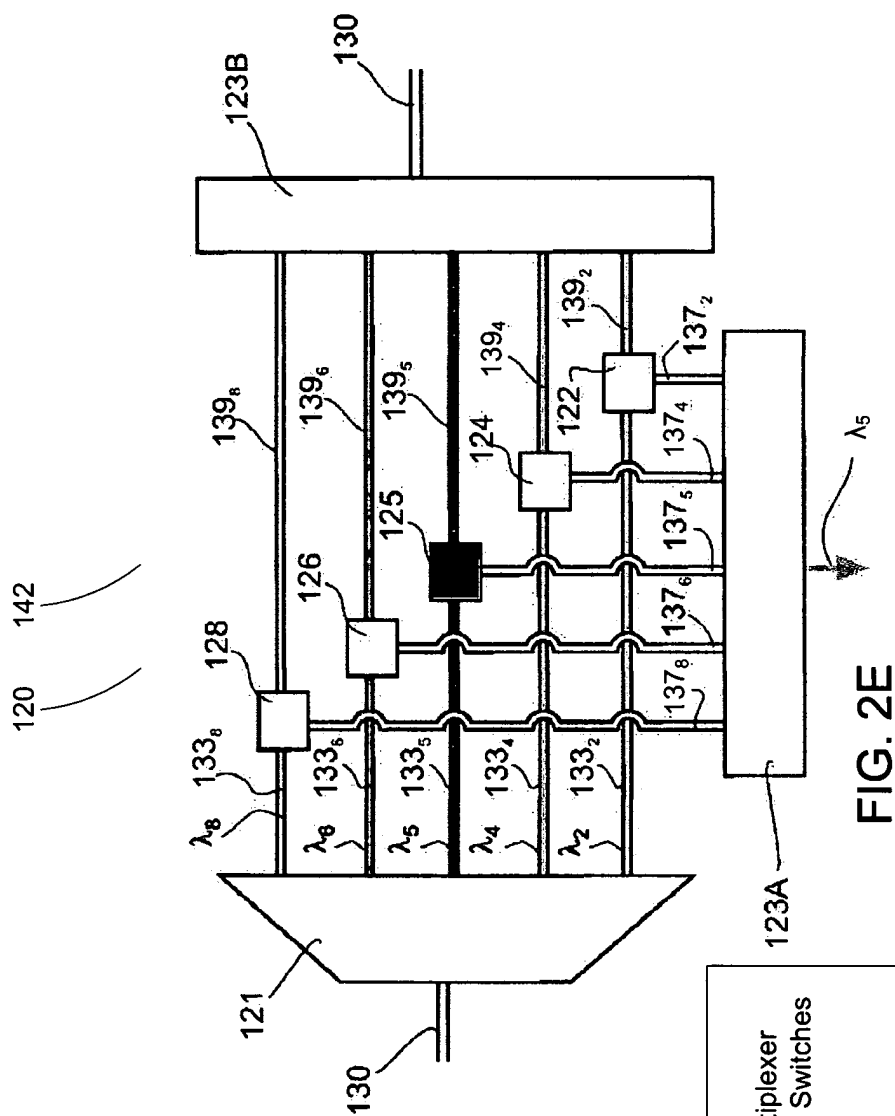


FIG. 2E

- 120 Optical Switch Array
- 121 Optical Wavelength Demultiplexer
- 122, 124, 125, 126, 128 Optical Switches
- 123A, 123B Optical Couplers
- 130 Optical Fiber
- 133 Input Optical Fiber
- 137 Output Optical Fiber
- 139 Output Optical Fiber
- 142 Optical Switch Array
- $\lambda$  Wavelength Designation

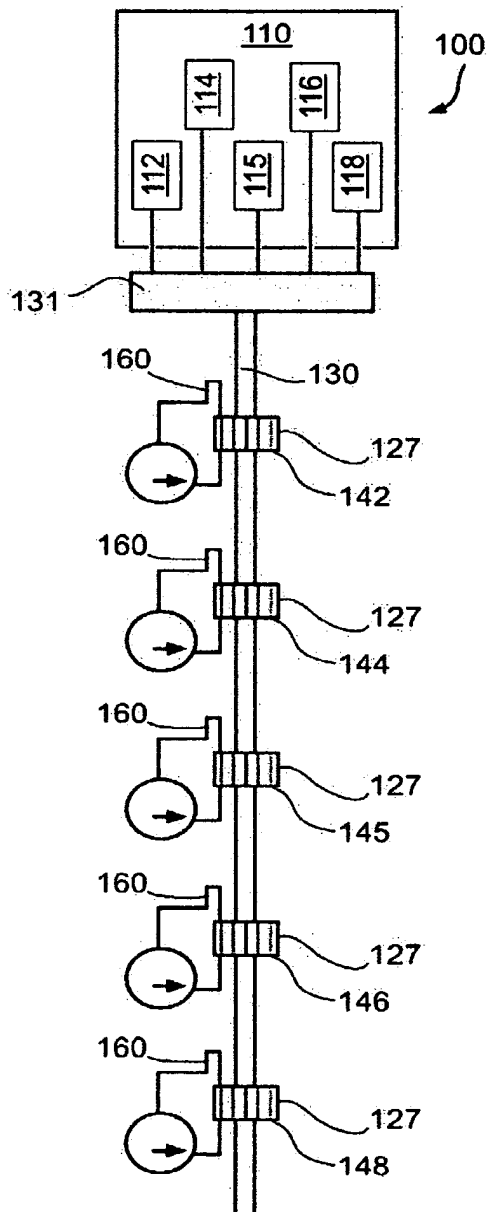


FIG. 2F

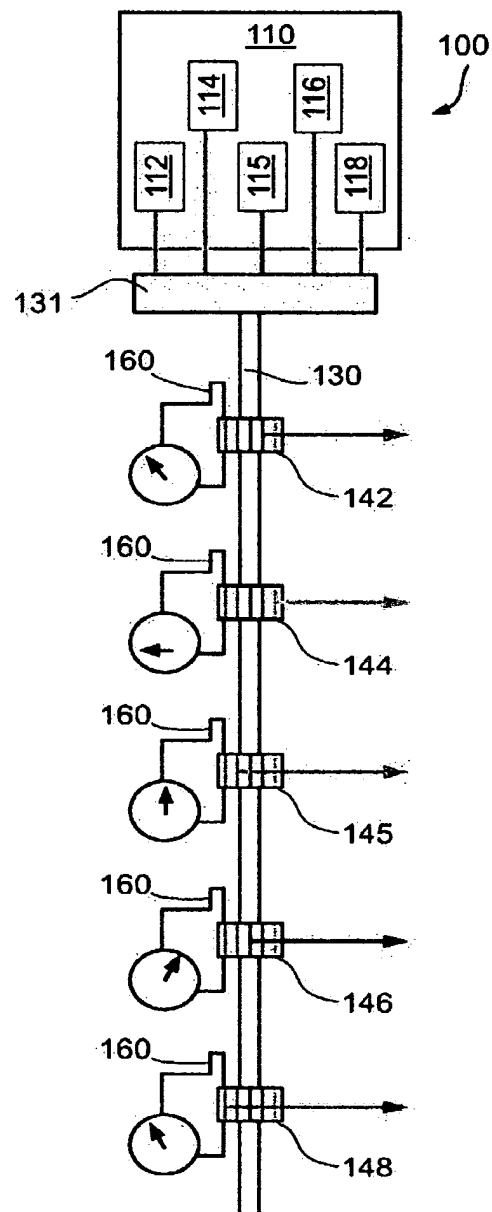


FIG. 2G

110 Laser Power Supply Station  
112, 114, 115, 116, 118 Continuous Work (CW) Laser Sources  
127 Electrohalographic Switch  
130 Optical Fiber  
131 Optical Coupler  
142, 144, 145, 146, 148 Optical Switches  
160 Variable Electric Source  
 $\lambda$  Wavelength Designation

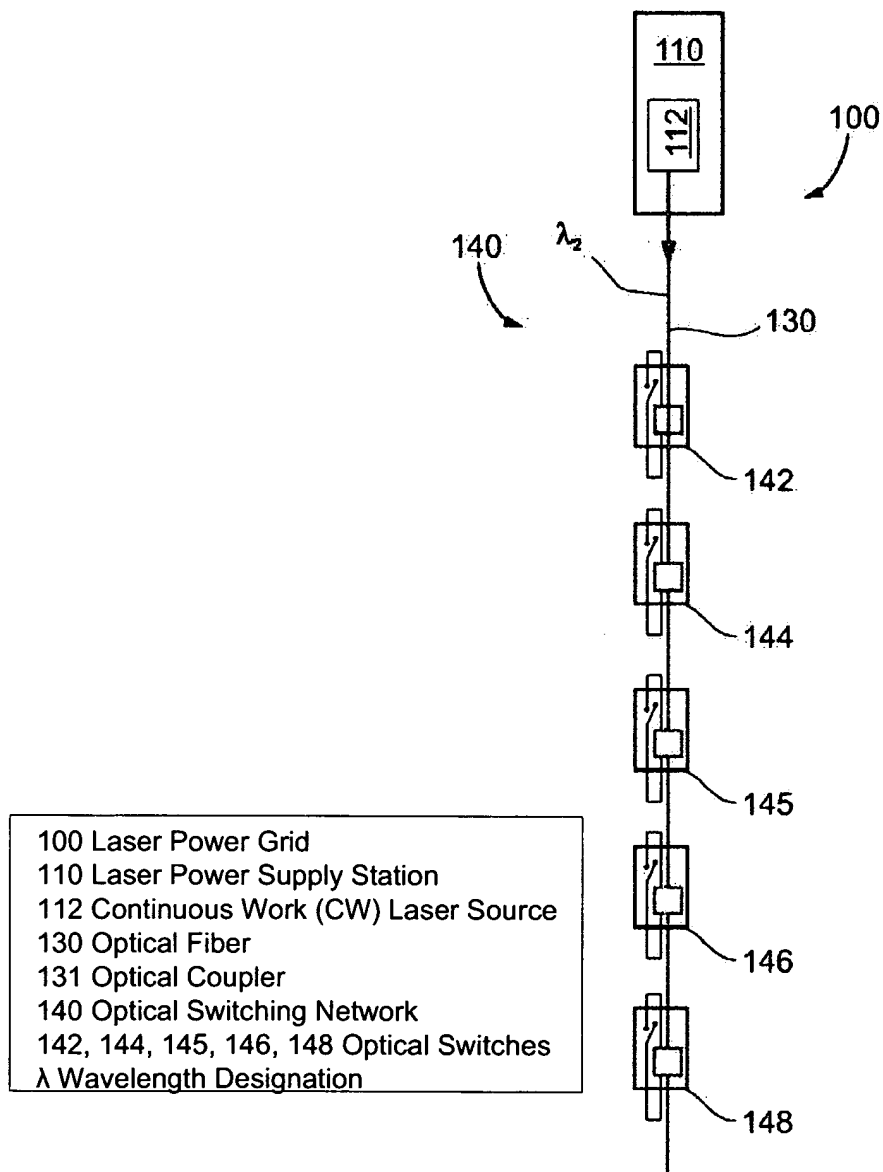


FIG. 2H



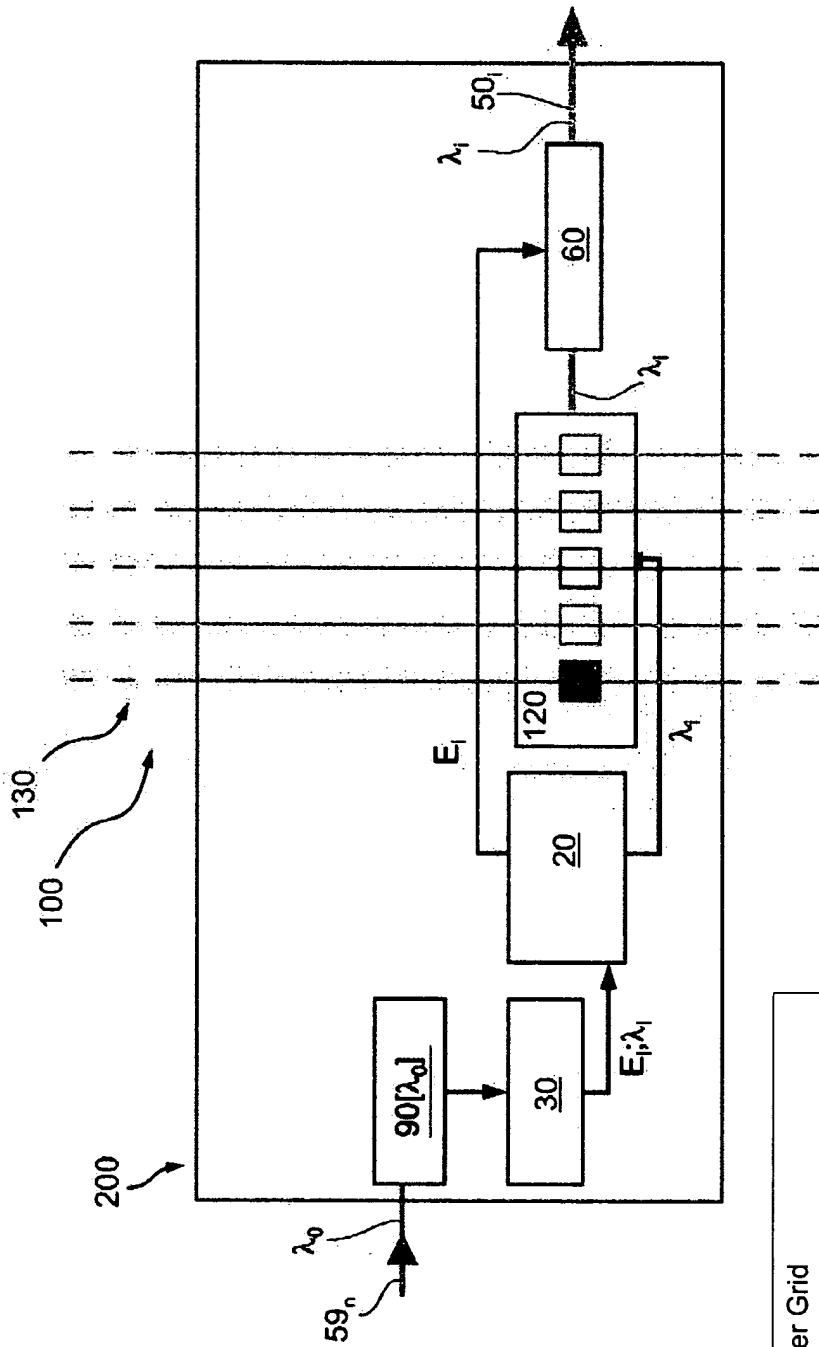


FIG. 3A

- 100 Laser Power Grid
- 20 Transmitter
- 30 Processing Unit
- 50 Data Packet
- 59 Received Data
- 90 Wavelength Addressed Receiver
- 120 Optical Switch Array
- 130 Optical Fiber
- 200 Processing Element (PE)
- E Electronic Data to be Transmitted
- λ Wavelength Designation

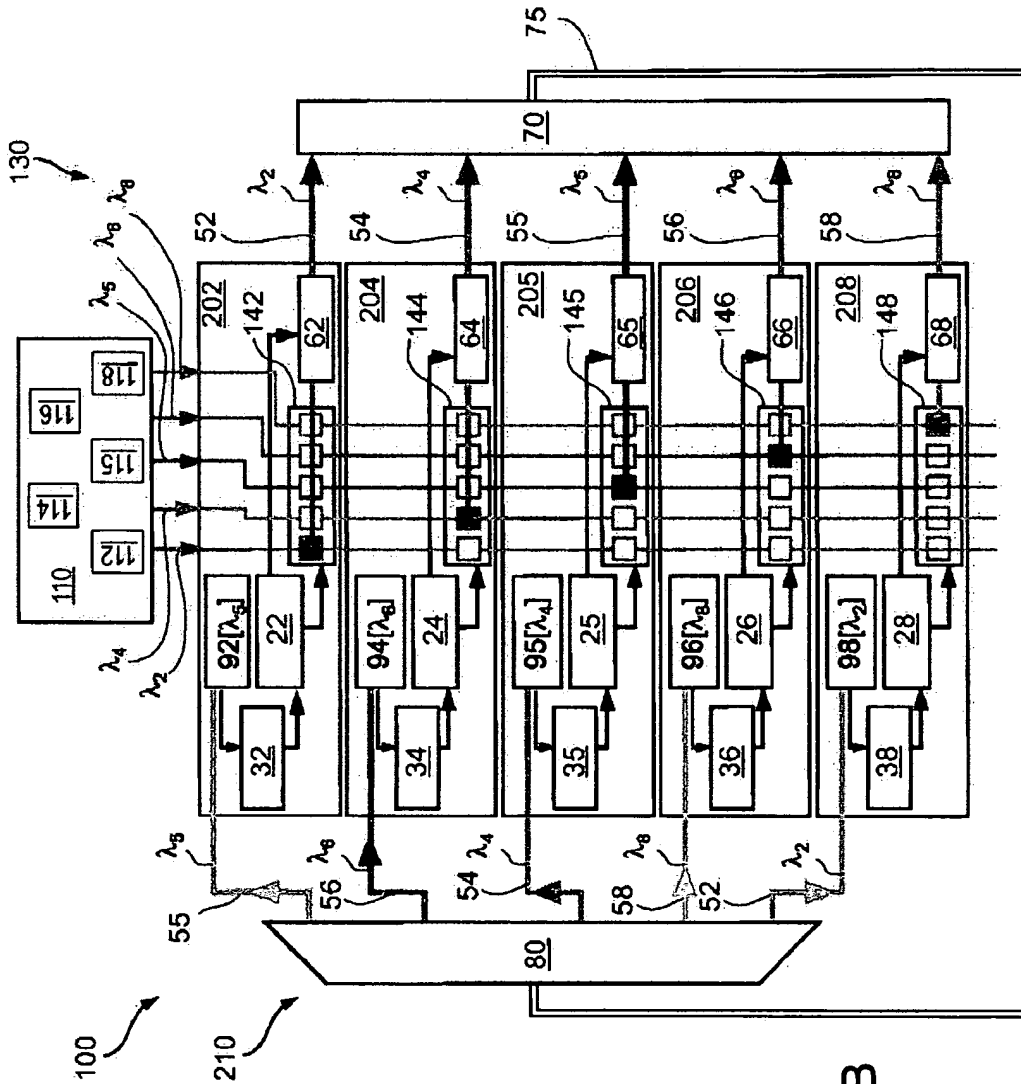
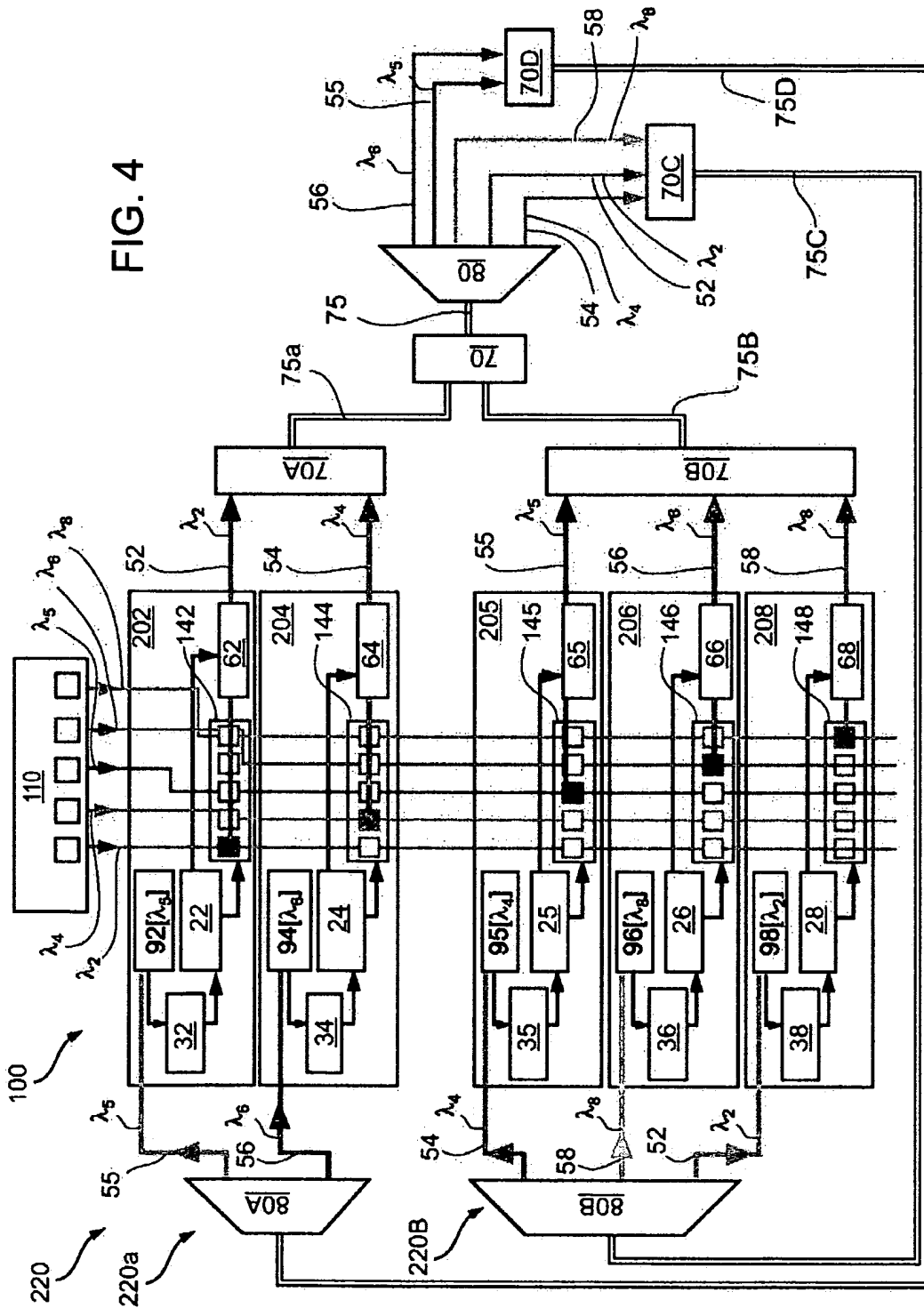


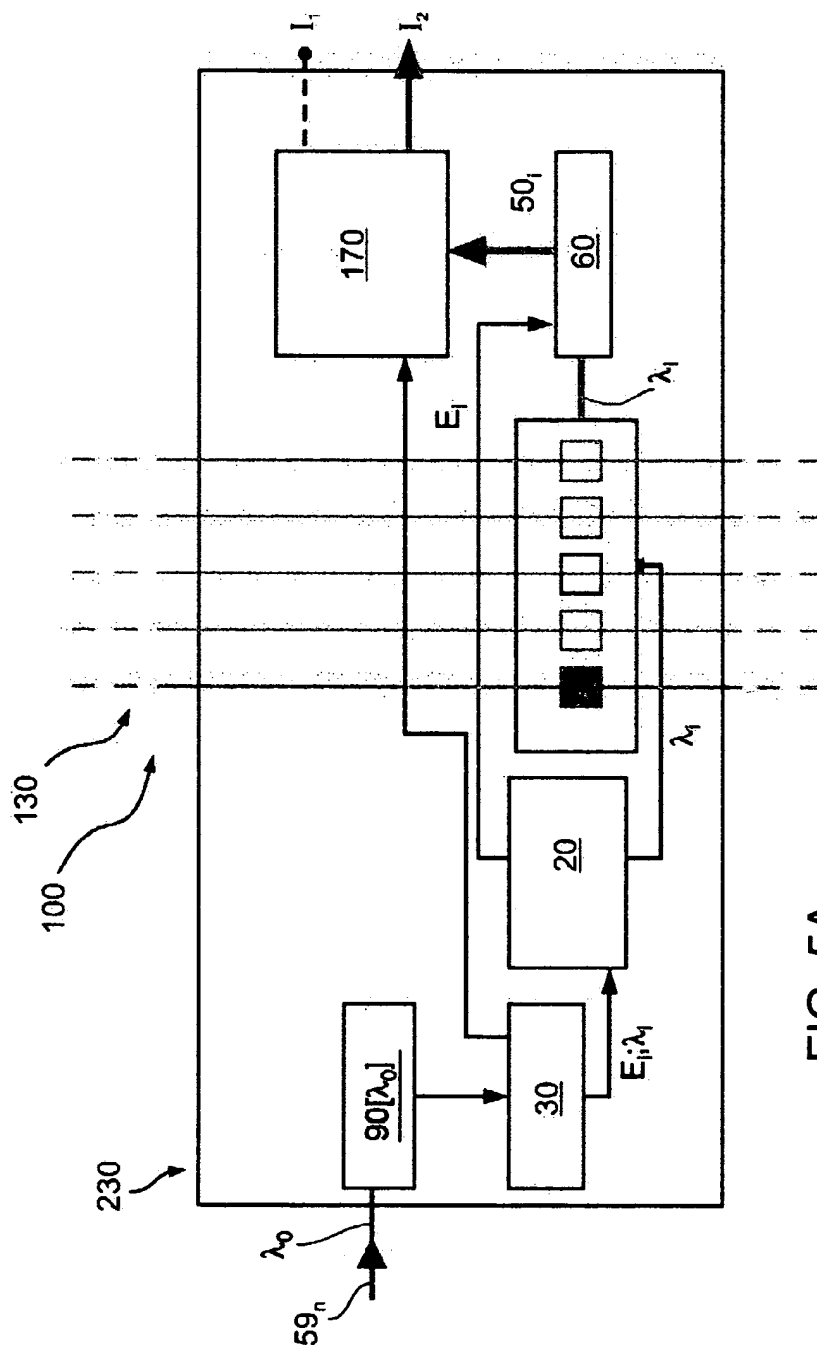
FIG. 3B

22, 24, 25, 26, 28 Transmitters	100 Laser Power Grid
32, 34, 35, 36, 38 Processing Units	110 Laser Power Supply Station
52, 54, 55, 56, 58 Data Packets	112, 114, 115, 116, 118 CW Laser Sources
62, 64, 65, 66, 68 Modulators	130 Laser Distribution Grid
70 Optical Coupler	142, 144, 145, 146, 148 Optical Switch Arrays
75 Optical Fiber	202, 204, 205, 206, 208 Processing Elements
80 Optical Wavelength Demultiplexer	210 Data Network
92, 94, 95, 96, 98 Wavelength Addressed Receivers	$\lambda$ Wavelength Designation

FIG. 4



22, 24, 25, 26, 28 Transmitters	110 Laser Power Supply Station
32, 34, 35, 36, 38 Processing Units	112, 114, 115, 116, 118 CW Laser Sources
52, 54, 55, 56, 58 Data Packets	130 Laser Distribution Grid
62, 64, 65, 66, 68 Modulators	142, 144, 145, 146, 148 Optical Switch Arrays
70, 70A, 70B, 70C, 70D Optical Coupler	202, 204, 205, 206, 208 Processing Elements
75, 75A, 75B, 75C, 75D Optical Fibers	220 Data Network
80, 80A, 80B Optical Wavelength Demultiplexer	220A, 220B Preferred Locations
92, 94, 95, 96, 98 Wavelength Addressed Receivers	λ Wavelength Designation
100 Laser Power Grid	



**FIG. 5A**

20 Transmitter	130 Laser Distribution Grid
30 Processing Unit	170 Cluster Router
50 Data Packet	230 Processing Element
59 Received Data	E Electronic Data to be Transmitted
60 Modulator	I Destination Cluster
90 Wavelength Addressed Receiver	$\lambda$ Wavelength Designation
100 Laser Power Grid	

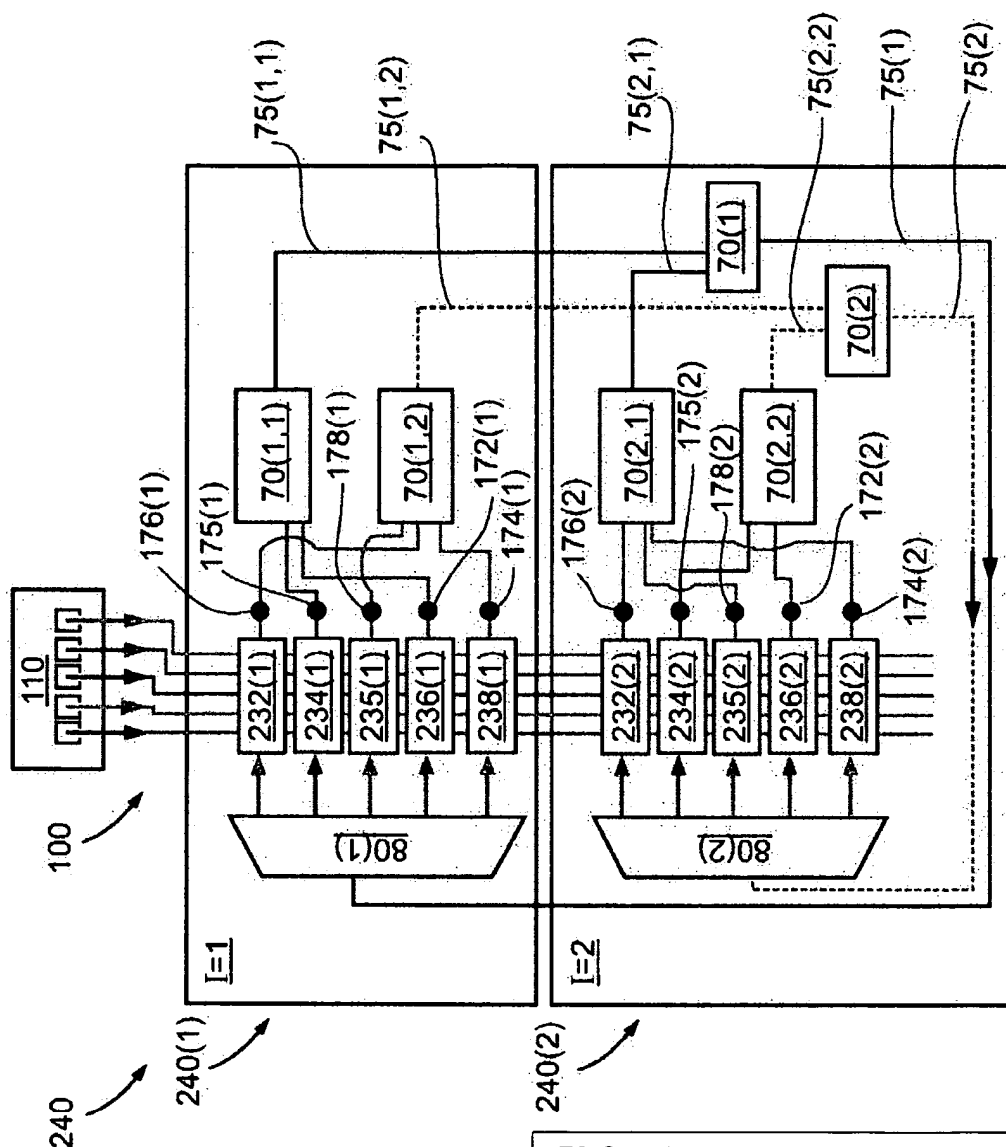


FIG. 5B

- 70 Coupler
- 75 Optical Fiber
- 100 Laser Power Grid
- 110 Laser Power Supply
- 172, 174, 175, 176, 178 Data Packets
- 232, 234, 235, 236, 238 Processing Elements
- 240, 240(1), 240(2) Clusters
- I Cluster ID

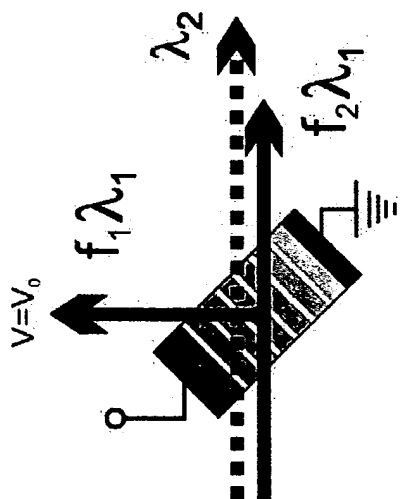


FIG. 6B

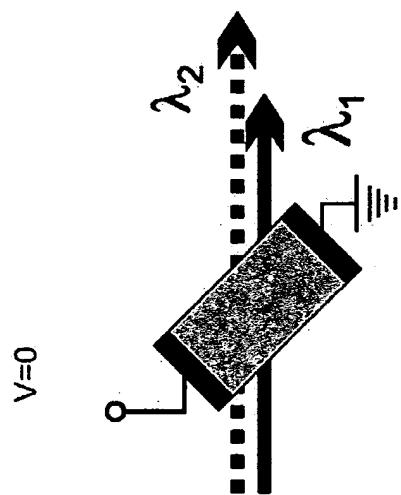


FIG. 6A